

Claims:

1. Inkjet printing apparatus for radiation curable ink comprising:
 - a support for receiving a substrate;
 - 5 a print head for directing radiation curable ink toward a substrate received on the support;
 - a source of radiation for providing radiation to ink received on the substrate;
 - a sensor for sensing the amount of radiation emitted by the source of radiation; and
 - 10 a controller having an input for receiving a signal from the sensor and at least one characteristic of the ink, substrate or printing productivity parameters, wherein the controller is connected to the source of radiation and varies the amount of radiation delivered by the source of radiation in accordance with the signal received from the sensor and the at least one characteristic of the ink, substrate or printing productivity parameters.
- 15 2. Inkjet printing apparatus according to claim 1 wherein the sensor is laterally offset from the substrate when the substrate is received on the support.
3. Inkjet printing apparatus according to claim 2 wherein the apparatus includes a drive mechanism for moving the source of radiation across the substrate and toward the sensor.
 - 20 4. Inkjet printing apparatus according to claim 3 wherein the apparatus is a flat bed printer, and wherein the drive mechanism moves the source of radiation to a location adjacent the sensor a plurality of times during the course of printing an image on the substrate.
 - 25 5. Inkjet printing apparatus according to claim 4 wherein the drive mechanism moves the source of radiation across the substrate along a relatively straight reference axis, and wherein the reference axis extends to a location adjacent the sensor.
 - 30 6. Inkjet printing apparatus according to claim 1 wherein the source of radiation is an ultraviolet source of radiation.

7. Inkjet printing apparatus according to claim 1 wherein the input of the controller receives at least one characteristic of the substrate and at least one characteristic of the ink.

5 8. Inkjet printing apparatus according to claim 7 wherein the drive mechanism is operable to move the source of radiation along a relatively straight reference axis, and wherein the reference axis extends to a location adjacent the sensor.

10 9. Inkjet printing apparatus according to claim 1 wherein the apparatus includes a first drive mechanism for moving the source of radiation across the substrate in a first direction, and a second drive mechanism for moving the source of radiation across the substrate in a second direction, and wherein the first direction is generally perpendicular to the second direction.

15 10. Inkjet printing apparatus according to claim 9 wherein the support extends generally in a reference plane, and wherein the first direction and the second direction are generally parallel to the reference plane.

20 11. A method of inkjet printing comprising:
 selecting a radiation curable ink;
 selecting a substrate;
 entering at least one characteristic of the ink, substrate or printing productivity parameters into a controller;
 directing the ink onto the substrate;
 activating a source of radiation for providing radiation to ink received on the substrate;

25 sensing the amount of radiation emitted by the source of radiation; and
 varying the amount of radiation delivered by the source of radiation in accordance with the sensed amount of radiation and the at least one characteristic of the ink, substrate or printing productivity parameters.

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12. The method of inkjet printing according to claim 11 wherein the act of activating a source of radiation is carried out by activating a source of UV radiation.

13. The method of inkjet printing according to claim 11 wherein the act of varying the amount of radiation is carried out by varying the intensity of radiation.

14. The method of inkjet printing according to claim 13 wherein the act of varying the amount of radiation is carried out by changing the voltage of power supplied to the source of radiation.

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15. The method of inkjet printing according to claim 11 wherein the act of varying the amount of radiation is carried out by moving one or more filters or lens elements along a path of travel that intersects the path of travel of radiation directed toward ink received on the substrate.

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16. The method of inkjet printing according to claim 11 wherein the act of varying the amount of radiation is carried out by varying the relative rate of passage of the source of radiation across ink received on the substrate.

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17. The method of inkjet printing according to claim 11 wherein the act of activating a source of radiation includes the act of activating a number of light sources, and wherein the act of varying the amount of radiation is carried out by varying the number of activated light sources.

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18. The method of inkjet printing according to claim 11 wherein the act of varying the amount of radiation is carried out by varying the rate of pulsation of radiation lamps.

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19. The method of inkjet printing according to claim 11 wherein the act of varying the amount of radiation is carried out by changing the distance between the source of radiation and the substrate.

20. Inkjet printing apparatus for radiation curable ink comprising:
a support for receiving a substrate;
a print head for directing radiation curable ink toward a substrate received on the
support;

5 a source of radiation;
a sensor for sensing the amount of radiation emitted by the source of radiation; and
means for directing the radiation along a first path toward the substrate in order to
provide radiation to ink received on the substrate and for also directing the radiation along
a second path toward the sensor, wherein the first path is different from the second path.

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21. Inkjet printing apparatus according to claim 20 wherein the first path is generally
parallel to the second path.

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22. Inkjet printing apparatus according to claim 20 wherein the second path is laterally
offset from the support.

23. Inkjet printing apparatus according to claim 20 wherein the means for directing
radiation comprises a drive mechanism for moving the source of radiation.

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24. Inkjet printing apparatus according to claim 20 wherein the source of radiation is
an ultraviolet source of radiation.

25. Inkjet printing apparatus according to claim 20 wherein the apparatus is a roll-to-
roll printer.

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26. Inkjet printing apparatus according to claim 20 wherein the apparatus is a flatbed
printer.

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27. A method of inkjet printing comprising:
providing a substrate;
applying radiation curable ink to the substrate;
directing radiation along a first path and toward ink received on the substrate;

directing radiation along a second path and toward a radiation sensor; and varying the amount of radiation directed toward the ink in accordance with the amount of radiation detected by the sensor.

5 28. The method of inkjet printing according to claim 27 wherein the act of activating a source of radiation is carried out by activating a source of UV radiation.

29. The method of inkjet printing according to claim 27 wherein the act of varying the amount of radiation is carried out by varying the intensity of radiation.

10 30. The method of inkjet printing according to claim 27 wherein the act of varying the amount of radiation is carried out by changing the voltage of power supplied to the source of radiation.

15 31. The method of inkjet printing according to claim 27 wherein the act of varying the amount of radiation is carried out by moving one or more filters along a path of travel that intersects the path of travel of the first path.

20 32. The method of inkjet printing according to claim 27 wherein the act of varying the amount of radiation is carried out by varying the relative rate of passage of the source of radiation across ink received on the substrate.

25 33. The method of inkjet printing according to claim 30 wherein the act of directing radiation along a first path includes the act of activating a number of lamps, and wherein the act of varying the amount of radiation is carried out by varying the number of activated lamps.

34. The method of inkjet printing according to claim 27 wherein the act of varying the amount of radiation is carried out by varying the rate of pulsation of radiation lamps.

35. The method of inkjet printing according to claim 27 wherein the act of varying the amount of radiation is carried out by changing the distance between the source of radiation and the substrate.

5 36. Inkjet printing apparatus for radiation curable ink comprising:
 a support for receiving a substrate;
 a print head for directing radiation curable ink toward a substrate received on the support;
 a source of radiation;
10 a drive mechanism for moving the source of radiation along a path across the substrate in order to provide radiation to ink received on the substrate, wherein the path also extends to a certain location laterally offset from the substrate; and
 a sensor next to the certain location for sensing the amount of radiation emitted by the source of radiation when the source of radiation is in the certain location.

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37. Inkjet printing apparatus according to claim 36 wherein the apparatus is a flat-bed printer, and wherein the drive mechanism moves the source of radiation to the certain location a plurality of times during the course of printing an image on the substrate.

20 38. Inkjet printing apparatus according to claim 36 wherein the drive mechanism comprises a first drive mechanism for moving the source of radiation across the substrate in a first direction and a second drive mechanism for moving the source of radiation across the substrate in a second direction, and wherein the first direction is generally perpendicular to the second direction.

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39. Inkjet printing apparatus according to claim 38 wherein the support extends generally in a reference plane, and wherein the first direction and the second direction are generally parallel to the reference plane.

30 40. Inkjet printing apparatus according to claim 36 wherein the source of radiation is an ultraviolet source of radiation.

41. A method of inkjet printing comprising:
providing a substrate;
applying radiation curable ink to the substrate;
moving a source of radiation across the substrate in order to provide radiation to
5 ink received on the substrate;
moving the source of radiation to a certain location that is laterally offset from the
substrate; and
sensing the amount of radiation emitted by the source of radiation when the source
of radiation is in the certain location.

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42. A method of inkjet printing according to claim 41 wherein the method also
includes the act of varying the amount of radiation emitted by the source of radiation in
accordance with the sensed amount of radiation.

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43. The method of inkjet printing according to claim 42 wherein the act of varying the
amount of radiation is carried out by varying the intensity of radiation.

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44. The method of inkjet printing according to claim 42 wherein the act of varying the
amount of radiation is carried out by changing the voltage of power supplied to the source
of radiation.

45. The method of inkjet printing according to claim 42 wherein the act of varying the
amount of radiation is carried out by moving one or more filters along a path of travel that
intersects the path of travel of radiation directed toward ink received on the substrate.

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46. The method of inkjet printing according to claim 42 wherein the act of varying the
amount of radiation is carried out by varying the relative rate of passage of the source of
radiation across ink received on the substrate.

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47. The method of inkjet printing according to claim 42 wherein the act of varying the
amount of radiation is carried out by varying the number of activated lamps.

48 The method of inkjet printing according to claim 42 wherein the act of varying the amount of radiation is carried out by varying the rate of pulsation of radiation lamps.

49. The method of inkjet printing according to claim 42 wherein the act of varying the amount of radiation is carried out by changing the distance between the source of radiation and the substrate.
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